MCDONNELL DOUGLAS

Douglas Aircraft Company

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DRAFT
PHASE II FIELD SAMPLING PLAN
DOUGLAS AIRCRAFT COMPANY C-6 FACILITY
TORRANCE, CALIFORNIA

Prepared for McDonnell Douglas Realty Company

by

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1.0 INTRODUCTION

The Douglas Aircraft Company (DAC) C-6 facility (site) is located at 19503 South Normandie Avenue in Torrance, California. The following sections describe the C-6 facility, and the regional and local geologic setting.

1.1 Site Description

Aerial photos indicate that the C-6 facility was farmland prior to the 1940s. The C-6 facility was first developed by the Defense Plant Corporation (DPC) in 1941 as part of an aluminum reduction plant. The plant was operated by the Aluminum Company of America until late 1944 (CDM, 1991). In 1948, the property was acquired by the Columbia Steel Company (CSC). In March 1952, the US Navy purchased the property from CSC and established DAC as the contractor and operator of the facility for the manufacturing of aircraft and aircraft parts. DAC purchased the C-6 facility from the Navy in 1970 (CDM, 1991).

Most manufacturing operations at the site have been inactive for approximately 4 years. Most of the manufacturing equipment has been removed from the facility. A limited amount of assembly and activities related to warehousing currently continue.

1.2 Regional Geology and Hydrogeology

Regionally, the DAC C-6 facility is located in the Torrance Plain. Subsurface sediments in this region consists mainly of Recent alluvial deposits of gravel, sand, clay, and silt to a depth of approximately 175 feet below ground surface (bgs).

According to Department of Water Resources (DWR, 1961), the C-6 facility is located in the Torrance Plain and underlain by the Bellflower Aquitard in the upper approximately 100 feet bgs and by the Gage Aquifer, a water-bearing zone within the Lakewood Formation, from approximately 110 to 160 feet bgs. The Lakewood Formation extends to a depth of approximately 175 feet bgs. Beneath the Lakewood Formation is the San Pedro Formation, which extends to a depth of approximately 1,000 feet bgs. Water-bearing zones in the San Pedro Formation consist of the Lynwood Aquifer from approximately 300 to 390 feet bgs and the Silverado Aquifer from approximately 400 to 670 feet bgs (DWR, 1961). The Silverado Aquifer is considered a source of drinking water.

1.3 Local Geology and Hydrogeology

In the Phase I investigation, Kennedy/Jenks reviewed boring logs from demolition plans of Building 67 dated 2 February 1968 and a Phase II subsurface soils investigation performed in 1991 (CDM, 1991). The reports showed that the C-6 facility is underlain by fine-to medium-grained sand, silty sand, and clayey sand. Borings from both investigations were advanced to a depth of approximately 30 feet below ground surface (bgs).

Subsurface soils encountered at locations drilled during Phase II investigation of Parcel A were similar in classification. Drilling to a maximum depth of 36 feet bgs penetrated an interbedded unit comprised of fine-grained sediments. The predominant soil type to this depth is silt. The silt units vary in thin intervals to clayey silt, silty clay, and sandy silt. Clay and silty sand were also found interbedded in the silt unit. Boring logs indicate that the subsurface sediments are sandier to the west (west of Building 37). Soils are generally a light brown to olive brown, with occasional gray silts noted. Though coloring was fairly consistent throughout the drilled areas, the silt varied from soft to hard.

According to recent groundwater monitoring performed by Kennedy/Jenks for DAC (Kennedy/Jenks, 1996), local groundwater elevations range from approximately 15.5 feet to 16 feet below msl (approximately 65 feet bgs). Recent and historical data suggest that the groundwater flow direction is to the southeast.

2.0 DRILLING AND SAMPLING METHODS

Field activities will be initiated with selection of sampling locations, geophysical screening for certain underground obstructions, and coring of concrete paving to access subsurface soils.

Sampling will be accomplished using direct-push and hollow-stem auger methods. The direct push technology uses a truck-mounted or portable hydraulically driven sampler or core barrel that allows penetration and standard sampling without the generation of drill cuttings. The *STRATAPROBE™* is a rugged, lightweight hydraulic drive point system designed to perform sampling and monitoring services specific to the environmental industry. The carrier vehicle is a four wheel drive, one ton pickup truck with a reliable power take-off hydraulic system. One of the most versatile systems of its kind the *STRATAPROBE™* can drive an assortment of sampling devices to fifty feet in many soil formations.

The direct push hydraulic unit consists of a rear-mounted, dual ram configuration mounted in conjunction with a vibrating component that is capable of producing high-frequency impact energy. A 5,000 pound static reaction weight and 15,000 pound pullback capacity provide ample force to overcome most common geologic conditions. The low profile mast is twelve feet high when fully extended and the framework of the machine is boom articulated to allow for a full range of positioning, including up to a 20 degree angle for boring underneath structures.

Soil samples will be obtained by using either of two primary methods, a 2.0-inch O.D. (outside diameter) x 36-inch overall length coring tube or 2.0-inch O.D. x 24-inch (nominal) overall length discrete piston sampler.

The samplers are threaded onto the leading edge of *STRATAPROBE* 1.5-inch O.D. probe rod and advanced to depth using the *STRATAPROBE* direct push system. The probe rods are nominally 4-feet in length and additional rods are connected to reach the desired depth. Soil samples are retrieved by retracting the probe rod and sampler to the surface and disassembling the sampler.

Samples are obtained in industry standard 1-inch to 1.25-inch sleeves made of brass, stainless steel, or acetate. The sleeves are removed from the sampler, Teflon squares are placed over each end and capped for transport to a laboratory for analysis.

The continuous coring system drives a 2" O.D. casing and a 24" split barrel sampler. The casing remains in place while the sampler is withdrawn preventing any sloughing or cross contamination.

The 24" split barrel is then lowered into the casing and the system is advanced another 2', repeating the process until the desired depth is reached. Samples are withdrawn from the split barrel in 1" x 24" acetate liner, or stainless steel and brass lineres may be used.

A mobile B-53 or equivalent hollow-stem auger rig will be used to drill and sample the proposed 50 foot deep boreholes. Sampling will be conducted using a standard split sampler fitted with 2-inch diameter, 6-inch long brass sleeves. Cuttings from these borings will be drummed and the holes backfilled to grade with a cement-bentonite grout.

Soil types encountered will be logged using the Unified Soil Classification System (USCS) at each boring. Drummed cuttings will be labeled, inventoried, and stored at the C-6 facility for later disposal by DAC.

2.1 Sample Handling

Soil samples will be identified with a boring number and depth using a predetermined nomenclature. For the site characterization, an example identification code is:

1-1-10

Where
1 area designation.
1- boring no. in that area
10 depth where sampling began

Samples will be placed in ice-cooled insulated containers upon collection and transported to the onsite mobile laboratories at the completion of a boring or transferred to the offsite laboratory by courier at the end of each day. Sample custody was maintained by the field sampler or field supervisor until transfer to one of the laboratories. Sample custody will be documented on standard chain-of-custody forms.

2.2 Sample Analytical Program

Analytical methods were selected for potential chemicals of interests based on the PESA findings. Analytical methods selected and the number of samples analyzed for each boring are detailed in Table 1 and summarized below.

- Samples collected at locations with potential volatile organic compound (VOC) releases will be analyzed in an onsite mobile laboratory by EPA Method 8010 and EPA Method 8020.

- Samples collected at locations with potential petroleum hydrocarbon releases will be analyzed in an onsite mobile laboratory by EPA Method 418.1 for Total Recoverable Petroleum Hydrocarbons (TRPH).

- Samples collected at a location with potential fuel releases will be analyzed in an onsite mobile laboratory by modified EPA Method 8015 for Total Petroleum Hydrocarbons (TPH) as diesel or gasoline, and screen for potential MTBE.

- Samples collected at locations with potential heavy metals releases will be analyzed in an offsite laboratory by EPA Method 6010 for CAM metals.

- Samples collected at locations with potential polychlorinated biphenyl (PCB) releases will be analyzed in an offsite laboratory by EPA Method 8080 for PCBs.

- Samples collected at a location with potential cyanide releases will be analyzed in an offsite laboratory by EPA Method 335.3 for total cyanides.

- Samples collected at locations with potential pesticide releases will be analyzed in an offsite laboratory by EPA Method 8080.

Add

- VOCs / SVOCs – and PAHs

One onsite mobile laboratory operated by Transglobal Environmental Geochemistry (TEG) will be maintained for sample analysis by EPA Method 418.1 for TRPH. TEG will also maintained two onsite mobile laboratories for sample analysis by EPA Method 8010/8020 for VOCs and modified EPA Method 8015 for TPH. Separate onsite laboratories are required because of potential interferences caused by analytical reagents used for EPA Method 418.1.

3.0 SOIL SAMPLING PLAN

Three main factors have been considered in the selection of sampling locations: 1. past history of the site including specific processes and specific building/area uses, 2. border areas with adjacent properties known to have soil contamination and 3. open space areas. The areas of investigation are shown on Figure 1. Examples of specific processes and specific areas include the chrome recovery system located on the east side of building no. 1 and the waste storage area identified as building/area 45. Border areas of special concern include Industrial Light Metals and Capitol Metals to the west and Montrose Chemical to the south. Specific open areas include the large parking lots on the west side of the site and areas with no suspected environmental concerns.

Sampling locations associated with specific processes and building/areas were selected by where the specific processes took place. Borings were located along the border areas of concern on approximately 200 foot spacings.

The overall sampling plan is summarized on Table 1 and presented on Figure 1.

3.1 Area 1 (Figure 2)

3.1.1 Building 40

3.1.1.1 Historical Uses

Building 40 was formerly used as a chemical storage area. Information on specific chemicals was not available. Currently the building is used to store various types of odds and ends and contains drums of lubricant and hydraulic oil.

3.1.1.2 Chemicals of Concern

- Lubricants and hydraulic oils
- Unknown chemicals

3.1.1.3 Sampling Rationale

Investigate the area of lubricants and hydraulic oils and sample storage areas. Have secondary containment area in the middle of the building. Two borings will be placed inside the building and sampled as follows:

Depths: 1', 5' and 10'

Spacing: Within secondary containment area.

Analyses: VOCs, Hydrocarbons, Metals, and semi-volatiles

3.1.2 Building 41

3.1.2.1 Historical Uses

Building 41 is approximately 4,700 ft^2 and was formerly the boiler house. The boilers were fueled by diesel. One boiler remains in place but not in operation. The building also contains air compressors and a floor drain. Clarifiers are located outside the building on the north and the south. The area around the building is known to contain hydrocarbons in the soils.

3.1.2.2 Chemicals of Concern

- VOCs
- Hydrocarbons (diesel and oils)
- Metals
- Semi-volatiles

3.1.2.3 Sampling Rationale

Investigate the floor drain inside the building and sampling outside by the two clarifiers and the known area of diesel contamination to 50 feet bgs. The building borders building 36 to the west, an area of known VOC contamination and borders a chemical etching process area to the southwest. One boring will be placed within the building and three around the outside on the north, east and south and sampled as follows:

Depths: 10',20',30',40',50'

Spacing: Specific areas of concern

Analyses: VOCs, Hydrocarbons, Metals, and semi-volatiles

3.1.3 Building/Area 45

3.1.3.1 Historical Uses

Building 45 is an area with a roof covering and open on the sides. The area was built between 1986 and 1989 and is used as a hazardous waste accumulation area. The hazardous wastes are picked up from this area on removed from the site. The area was formerly a cyanide storage area.

3.1.3.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals including hexavalent chromium
- Cyanide
- Semi-volatiles

3.1.3.3 Sampling Rationale

Investigate area of hazardous waste storage inside area and the area to the north where the wastes are picked up for removal from the site. Three borings will be placed inside the area and two borings outside on the north. The borings will be sampled as follows:

Depths: 1', 5', 10'

Spacing: Placed in the most likely areas (approximately 50-100 foot spacing inside area).

Analyses: VOCs, Hydrocarbons, Metals including Cr^6, and Semi-volatiles

3.1.4 Building 66A (66-1) Area

3.1.4.1 Historical Uses

Building 66A is a wood frame building that served as a shipping office. Outside the building to the northwest is a heavily stained cleaning area with an underground sludge tank.

3.1.4.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals including hexavalent Chrome
- Cyanide
- Semi-volatiles

3.1.4.3 Sampling Rationale

The heavily stained area outside building 66A will be investigated to determine the nature of the stains and to examine the integrity of the sludge tank. If present, liquid and solid sludge will also be sampled. Two borings will be placed in the area of the stained ground and sludge tank and sampled as follows:

Depth: 1', 5', and 10' below base of the asphalt in the stained area
1', 5', and 10' below the base of the tank

Spacing: Specific areas of concern

Analyses: VOCs, Hydrocarbons, Metals including Cr^6, cyanide, and Semi-volatiles

3.1.5 <u>Chrome Recovery System Area (CRS)</u>

3.1.5.1 Historical Uses

This area was historically used for recovery of chromium from facility processes. All process equipment has been removed and only secondary containment berms are present. The area also borders the chemical etching area to the north.

3.1.5.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals including hexavalent chrome
- pH

3.1.5.3 Sampling Rationale

Investigate the area of the chrome recovery process containment for the potential of spills of process chemicals and chrome. Check area to north for impact from the chemical etching process area. Four borings will be placed inside the chrome recovery system containment areas and one borings will be placed immediately north of the process area. The borings will be sampled as follows:

Depth: 1', 5', 10'

Spacing: Specific areas of concern

Analyses: Metals including Cr^6 and pH inside process areas
VOCs, Hydrocarbons, Metals including Cr^6, and pH in area to north

3.1.6 <u>Chemical Etching Area</u>

3.1.6.1 Historical Uses

The area has been used for chemical etching of parts. Its located on the northeast corner, outside building no.1 and is composed of two areas of process equipment.

3.1.6.2 Chemicals of Concern

- VOCs
- Metals including hexavalent chrome
- pH

3.1.6.3 Sampling Rationale

Investigate the area where the chemical etching processes were performed. The area is outside building no. 1 and is covered with a roof but has open sides. Four borings will be placed in the area and sampled as follows:

Depth: 1', 5', and 10'

Spacing: Evenly spaced in the process areas. Approximately on 50' spacings.

Analysis: VOCs, Metals including Cr^6, and pH

3.1.7 <u>Area Southeast of Building 41</u>

3.1.7.1 Historical Use

This area is essentially open space between building 41 and area 45.

3.1.7.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- Cyanide

3.1.7.3 Sampling Rationale

This area is located close to building 41, an area of known, deep hydrocarbon and VOC contamination, and locations have been chosen to determine the potential extent to the southeast. Four soil borings will be placed in the area and sampled as follows:

Depth: 10',20',30'.40'.50'

Spacing: Borings locations are spaced on approximate 50' spacing between building 41 and area 45.

Analyses: VOCs, Hydrocarbons, Metals and cyanide

3.1.8 Open Space

3.1.8.1 Historical Uses

Because of the many chemical storage and process use areas throughout Area 1, the remaining open space will be investigated to provide additional information on distribution of potential chemicals of concern throughout the area and to provide support for the Risk Analysis.

3.1.8.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- Semi-volatiles

3.1.8.3 Sampling Rationale

The open spaces will be investigated to provide sufficient data throughout Area 1 to complete the Risk Assessment. Five borings will be placed throughout the open space including two borings east of building 41 and north of area 45, one boring east of area 45, and two borings between the chrome recovery process area and chemical etching area on the west and area 45 and building 66A on the west. The borings will be sampled as follows:

Depth: 1', 5', 10'

Spacing: evenly spaced in the open areas

Analyses: VOCs, Hydrocarbons, Metals and Semi-volatiles

3.2 AREA 1A (Figure 2)

3.2.1 Border with Industrial Light Metals and Parking Lot

3.2.1.1 Historical Uses

This area has historically been primarily a parking lot with minor storage of building and office materials. The area borders Industrial Light Metals and a rail line to the west and a rail line to the north.

3.2.1.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- PCBs

3.2.1.3 Sampling Rationale

Investigate the border with Industrial Light Metals to determine potential impact to DAC soils from known contaminated areas to the west and from potential spillage along the railroad. Complete sampling throughout the parking lot to provide data for the Risk Assessment and to investigate potential for unknown occurrences. Eight borings will be placed along the border with ILM to the west and 11 additional borings will be placed throughout the remainder of the parking area. Soil sampling will be as follows:

Depth:	10',20',30'.40',50' (along ILM border) 5',10',15',20',25' (throughout parking lot)
Spacing:	200' spacing along ILM border 300'-400' spacings in parking lot
Analyses:	VOCs, Hydrocarbons, Metals and PCBs

3.3 AREA 2 (Figure 3)

3.3.1 <u>Buildings 54-56</u>

3.3.1.1 Historical Uses

Buildings 54 through 56 are small wood frame buildings used for office and storage space and are empty. There is a small electrical transformer located west of building 54. There is a small area of staining on the ground in front of buildings 54 and 55.

3.3.1.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- PCBs

3.3.1.3 Sampling Rationale

Investigate the small stained area in front of buildings 54 and 55 for hydrocarbons. The electrical transformer is identified as containing PCBs. Two borings will be placed in the specific areas of concern and sampled as follows:

Depth:	1', 5',10'
Spacing:	Specific areas of concern
Analyses:	VOCs, Hydrocarbons (area in front of buildings 54 and 55) PCBs (area around the electrical transformer)

3.3.2 Tool Storage Yard and Railroad Spurs

3.3.2.1 Historical Uses

The tool storage yard is a roughly rectangular area of about 1.1 million square feet located in the southwestern portion of the site. The yard is bound by railroad tracks on the south and east, Western Avenue on the west and Capitol Metals on the north. The area is supplied by railroad spurs that divide the area into north-south trending strips. The western part of the area is gravel at the surface and the eastern part is covered with variously weathered asphalt. The area is used to store master tools used to make aircraft parts. Most of the tools are stored in wooden crates but some lie directly on the ground. The parts are typically coated with lead or some other protective coating. These protective coatings may have leached into the underlying soils. Unknown storage on railroad cars may have taken place in the past.

3.3.2.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- Semi-volatiles

3.3.2.3 Sampling Rationale

Investigate the area on the north that borders Capitol Metals which is known to have soil contamination. Investigate the remainder of the area to determine if there was any impact from the tools on the underlying soil. Four borings will be placed along the border of Capitol Metals and 15 borings will be placed throughout the tool storage area and open space to support the Risk Assessment. The borings will be sampled as follows:

Depth:	1',5',10'
Spacing:	300' spacings along the border with Capitol Metals 300' spacings throughout the tool storage area and open space to the east with a staggered layout.
Analyses:	VOCs, Hydrocarbons, Metals and Semi-volatiles

3.3.3 Scrap Metal Storage Area

3.3.3.1 Historical Uses

This area is a long narrow strip of land of approximately 100,000 ft^2 and is bordered on the north by railroad tracks, on the west by Western Avenue, on the south by a residential area and on the east by an electrical substation. The area is covered with asphalt and is heavily stained in places. The area has historically been used as a catchall for all sorts of equipment etc. such as dip tanks, refrigerators, tires, pumps, trash compactors, railroad rails etc.

3.3.3.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals including hexavalent chromium
- Semi-volatiles
- PCBs

3.3.3.3 Sampling Rationale

This area was a catch-all and may have contained any and all materials used at the facility. Nine borings will be placed throughout this area and sampled as follows:

Depth: 1',5',10' (the 7 westernmost borings)
5',10',15',20',25' (the 2 borings on the east that border the substation)

Spacing: 300'

Analyses: VOCs, Hydrocarbons, Metals, Semi-volatiles and PCBs (eastern 2 borings)

3.3.4 Borders with the Electrical Substation and Montrose Chemical

3.3.4.1 Historical Uses

This area includes the borders with the electrical substation on the south and Montrose Chemical on the east.

3.3.4.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- PCBs
- Pesticides

3.3.4.3 Sampling Rationale

This area borders the electrical substation which may have impacted DAC soils over the years. The area also borders Montrose Chemical, a superfund site known to have impacted DAC soils in the past. Investigation of this area is necessary to clearly define the border areas of the site. Five borings will be placed along the border with two borings bordering the substation and three borings along the border with Montrose. The borings will be sampled as follows:

Depth: 5',10',15',20',25

Spacing: 150' - 200'

Analyses: VOCs. Hydrocarbons, PCBs (along the substation border) and Pesticides (along the Montrose border)

3.4 AREA 3 (Figure 4)

3.4.1 <u>Buildings 59 and 59A</u>

3.4.1.1 Historical Uses

Historically building no. 59 has been a weigh station office and building 59A is a three sided storage building for light equipment.

3.4.1.2 Chemicals of Concern

- VOCs
- Hydrocarbons

3.4.1.3 Sampling Rationale

The hydraulic scale outside the weigh station typically can leak fluids into the underlying soils. The ground area inside building 59A was highly stained and may have contributed chemicals to the underlying soils. Two borings, one at each location will be placed in this area and sampled as follows:

Depth: 1',5',10' below the bottom of the scale
1',5',10'

Spacing: Specific areas of concern

Analyses: VOCs, Hydrocarbons

3.4.2 <u>Border with Montrose Chemical</u>

3.4.2.1 Historical Uses

This area includes a border with Montrose Chemical on the south.

3.4.2.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Pesticides
- Coolants

3.4.2.3 Sampling Rationale

The area borders Montrose Chemical, a superfund site known to have impacted DAC soils in the past. Investigation of this area is necessary to clearly define the border areas of the site. The border area also contains a waste disposal area that collects machine coolants. Six borings will be placed along this border and sampled as follows:

Depth: 5',10',15',20',25'

Spacing: 200'

Analyses: VOCs. Hydrocarbons, Pesticides, Freon

3.4.3 <u>Salvage Yard and Storage Area</u>

3.4.3.1 Historical Uses

This area has historically been the site of temporary salvage storage and a parking lot of the west. Recently the parking lot has been filled with office storage shelves etc. that have been relocated from the northern portion of the site that is presently under construction.

3.4.3.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals

3.4.3.3 Sampling Rationale

The area has contained multiple types of metal salvage over the years and was a parking lot on the west. The large open area will be sampled to provide data for the Risk Analysis. Nine borings will be placed throughout this area on a zig-zag pattern and will be sampled as follows:

Depth: 1',5',10'

Spacing: 300'

Analyses: VOCs, Hydrocarbons and Metals

3.5 AREA 4 (Figure 5)

3.5.1 <u>Driveway between Building 66 and Railroad Tracks</u>

3.5.1.1 Historical Uses

The area has typically been a roadway between building 66 on the west and a main railroad line on the east.

3.5.1.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- Semi-volatiles

3.5.1.3 Sampling Rationale

The area has historically been a roadway located next to a railroad line and should be investigated for associated chemicals. Six borings will be placed along the area and sampled as follows:

Depth: 1',5',10'

Spacing: 300'

Analyses: VOCs, Hydrocarbons, Metals and semi-volatiles

3.6 AREA 5 (Figure 6)

3.6.1 Building 4

3.6.1.1 Historical Uses

Building 4 is a small (3,000 ft^2) building that has historically housed the electrical switching equipment for the site. A battery charging station was also located inside the building.

3.6.1.2 Chemicals of Concern

- VOCs
- PCBs

3.6.1.3 Sampling Rationale

Investigate the electrical equipment storage area and the battery charging area. One boring will be placed inside building 4 and sampled as follows:

Depth: 1',5',10'

Spacing: Specific area of concern

Analyses: VOCs and PCBs

3.6.2 Building 15

3.6.2.1 Historical Uses

Building 15 has historically housed the payroll department, shipping office and a photo laboratory.

3.6.2.2 Chemicals of Concern

- VOCs
- Metals

3.6.2.3 Sampling Rationale

Investigate the area of the photo laboratory for process chemicals with one boring sampled as follows:

Depth: 1',5',10'

Spacing: Specific area of concern

Analyses: VOCs, Metals

3.6.3 Border with Industrial Light Metals

3.6.3.1 Historical Uses

This area has historically been primarily small office buildings and open space and borders Industrial Light Metals and a rail line to the west.

3.6.3.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- PCBs

3.6.3.3 Sampling Rationale

Investigate the border with Industrial Light Metals to determine potential impact to DAC soils from known contaminated areas to the west. Three borings will be placed along the border with ILM to the west and sampled as follows:

Depth: 10',20',30'.40',50'

Spacing: 200'

Analyses: VOCs, Hydrocarbons, Metals and PCBs

3.6.4 <u>Western Open Space</u>

3.6.4.1 Historical Uses

These areas have historically been open grounds surrounding the office buildings in this western portion of Area 5.

3.6.4.2 Chemicals of Concern

- VOCs
- Hydrocarbons

3.6.4.3 Sampling Rationale

Investigate the open space surrounding the buildings in this portion of Area 5 to supplement the data collected and to support the Risk Assessment. Four borings will be placed in the open space and sampled as follows:

Depth:	1',5',10'
Spacing:	Specific open spaces
Analyses:	VOCs, and Hydrocarbons

3.6.5 <u>Building 20</u>

3.6.5.1 Historical Uses

Building 20 is the active vehicle maintenance area of the facility and contains the following: battery recharging area in the north end of the building, a 3-stage clarifier draining a steam cleaning booth, an above ground motor oil tank, hydraulic lifts and a condensation pit in the southwest corner. Outside the building is the active pump island that dispenses unleaded and regular gas from underground tanks.

3.6.5.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- Semi-volatiles
- MTBE

3.6.5.3 Sampling Rationale

Investigate the areas throughout building 20 and outside for specific environmental concerns associated with the battery charging area, the 3-stage clarifier, the motor oil tank, the hydraulic lifts, the condensation pit, the pump island and the underground tanks. Ten borings will be placed in the specific areas and sampled as follows:

Depth:	1',5',10' (below the concrete in the battery storage are and below the motor oil tank) 1',5;,10' (below the bottom of the clarifier, hydraulic lifts, condensation pit, fuel pumps and underground fuel tanks)
Spacing:	Specific areas of concern
Analyses:	VOCs and Hydrocarbons at all locations pH at the battery charging area metals at the condensation pit MTBE at the pump island and underground storage tanks

3.6.6 Building 32

3.6.6.1 Historical Uses

Building 32 was built sometime in the 1980s and has always been the cafeteria and meeting hall. A small salvage yard was located outside the building to the north.

3.6.6.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals

3.6.6.3 Sampling Rationale

No specifics are known about the salvage area behind the building. The area will be investigated with one boring and sampled as follows:

Depth:	1',5',10'
Spacing:	Specific area of concern
Analyses:	VOCs, Hydrocarbons, Metals

3.6.7 Building 1

3.6.7.1 Historical Uses

Building 1 is presently used for storage of small tools and records. Historically the building was used as a carbon baking area and for metal finishing. Most of the equipment has been removed and most of the processes took place on the first floor of the building. The building is underlain by a basement that is currently used to store small molds and dies. Reportedly there was a painting area in the east wing of the basement. There are dip tanks located in the western annex of the building.

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3.6.7.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- pH

3.6.7.3 Sampling Rationale

The process areas on the first floor will not be sampled unless they are immediately adjacent to an outside wall. Areas to be investigated include the painting area (two borings) in the east wing of the basement and the dip tanks (three borings) in the west annex. The remainder of the basement will be sampled to support the Risk Assessment on a grid that includes 20 borings and will be sampled as follows:

Depth: 1',5',10' (dip tank area will be same intervals below the bottom of the containment area)

Spacing: Specific areas of concern and 100'-200' in the basement area

Analyses: VOCs, Hydrocarbons, Metals, Cr^6 at all areas but the dip tanks
pH in the northeast corner of the basement
VOCs, metals, Cr^6, and pH at the dip tanks

3.6.8 <u>Driveway between Building 2 and Area 5 Buildings</u>

3.6.8.1 Historical Uses

This area has historically been used as a transportation corridor for people, equipment and materials used at the facility.

3.6.8.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals including hexavalent chromium

3.6.8.3 Sampling Rationale

The area has been exposed to materials on the facility over the years. Five borings will be placed in this area and sampled as follows:

Depth: 1',5',10'

Spacing: 200'

Analyses: VOCs, Hydrocarbons, Metals, Cr^6 (west end only)

3.7 AREA 6 (Figure 7)

3.7.1 Border with Industrial Light Metals

3.7.1.1 Historical Uses

This area has historically been primarily a parking lot. The area borders Industrial Light Metals, Capitol Metals and a rail line to the west and a rail line to the south.

3.7.1.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- PCBs

3.7.1.3 Sampling Rationale

Investigate the border with Industrial Light Metals and Capitol Metals to determine potential impact to DAC soils from known contaminated areas to the west and from potential spillage along the railroad. Complete sampling throughout the parking lot to provide data for the Risk Assessment and to investigate potential for unknown occurrences. Seven borings will be placed along the border with ILM and Capitol Metals to the west and 9 additional borings will be placed throughout the remainder of the parking area. Soil sampling will be as follows:

Depth:	10',20',30'.40',50' (along ILM border) 5',10',15',20',25' (through parking lot)
Spacing:	200' spacing along ILM border 300'-400' spacings in parking lot
Analyses:	VOCs, Hydrocarbons, Metals and PCBs

3.8 SUPPLEMENTAL AREA - NE (Figure 8)

3.8.1 Diesel Fuel Line

3.8.1.1 Historical Uses

This area contains the shallow buried pipeline that transferred diesel fuel from the large tanks on the northeast corner of the site to building 41.

3.8.1.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Semi-volatiles

3.8.1.3 Sampling Rationale

Investigate along the distribution pipeline going between the above ground tanks and building 41 for potential leaks. Four borings will be placed along the pipeline and sampled as follows:

Depth: 5',10',15',20',25' (3 northernmost borings)
10',20',30',40',50' (boring closest to building 41)

Spacing: Approximately 200'

Analyses: VOCs and Hydrocarbons

3.8.2 Northeast Unpaved Area

3.8.2.1 Historical Uses

This area includes the northeasternmost portion of the site and is topographically a low area that has been historically unpaved. The area surrounds the above ground fuel tanks and a borders a rail line to the east.

3.8.2.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- Semi-volatiles

3.8.2.3 Sampling Rationale

Investigate the area because of its proximity to above ground fuel tanks, railroad and because it has historically been a topographically low area receiving surface water runoff from the west and south. Ten borings will be placed throughout the area and sampled as follows:

Depth: 5',10',15',20',25' (nine borings)
10',20',30',40',50' (one boring)

Spacing: Approximately 200'

Analyses: VOCs, Hydrocarbons, Metals, semi-volatiles

3.9 SUPPLEMENTAL AREA - NW (Figure 8)

3.9.1 Area of Buildings 67, 57, 61, and 34

3.9.1.1 Historical Uses

Building 34 was historically the commissary and at sometime was converted to a machine shop. Building 57 has historically been used for parts storage and contains no manufacturing. Building 61 has historically been used for plastic parts manufacturing and contains paint booths and hydraulic lifts. Building 67 historically included a high voltage electric discharge machine to remove burrs from aircraft parts, a treatment process line with acids and solvents, a chemical storage area, x-ray booths, and a air compressor room.

3.9.1.2 Chemicals of Concern

- VOCs
- Hydrocarbons
- Metals
- pH

3.9.1.3 Sampling Rationale

The buildings were specifically sampled for the areas of concern in a previous investigation. The buildings have now been removed from the area and the investigation is necessary to provide confirmatory sampling after demolition and to support the Risk Assessment. Nine borings will be placed in this area and sampled as follows:

Depth: 1',5',10'

Spacing: 400'

Analyses: VOCs, Hydrocarbons, Metals, pH

4.0 QUALITY ASSURANCE/QUALITY CONTROL

4.1 Method References

The analytical methods used at TEG are based on procedures in the following references:

- -- U.S. EPA Document SW-846, Test Methods for Evaluating Solid Waste, Third Edition, November, 1986, and Draft Revision 1, December 1987;
- -- U.S. EPA Document 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, March 1983;
- -- U.S. Code of Federal Regulations 40, Protection of Environment, Part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants, July 1, 1989;
- -- U.S. Code of Federal Regulations 40, Protection of Environment, Part 141, National Primary Drinking Water Regulations, July 1, 1989; and

-- California State Water Resources Control Board, Division of Water Quality, Leaking Underground Fuel Tank Field Manual, December 17, 1987.

This section of the document provides a summary of the analytical methods employed by TEG's mobile and fixed laboratories across the country. Detection limits and QC criteria are summarized in Table 5-1. This section is not meant to be a step-by-step guide nor a complete description of the analytical procedures. Reference is made to detailed descriptions in SW-846 and other relevant documents.

4.2 Halogenated Hydrocarbons By EPA Methods 601 and 8010

Calibration: Initial calibration is accomplished by preparing standards at five concentrations spanning the linear range of the instrument. The standards are then analyzed and the calibration curve evaluated for linearity. Linearity is acceptable when the % relative standard deviation of the average response factor is less than 20%. If linearity is not achieved for some compounds, a calibration curve is used.

Water Sample Preparation: For aqueous samples, a 5mL aliquot is spiked with a surrogate and prepared by purge and trap in general accordance with EPA method 5030. Alternatively, for a limited number of the analytes, samples can be prepared by liquid-liquid extraction, generally following EPA Method 3510. A 30 to 40mL aliquot of water is extracted with 1mL of an immiscible organic solvent (hexane) by shaking vigorously for 5 minutes in a clean 40mL VOA vial. The mixture is allowed to settle and ~3uL of solvent are withdrawn and injected into the gas chromatograph.

Soils and Solid Wastes: Samples are either directly sparged by creating a slurry with water or a solvent extraction is first performed using methanol. The methanolic extraction is achieved by placing ten grams of the soil sample into a 40mL VOA vial with 10mL of reagent purge-and-trap grade methanol. The VOA is then hand shaken for two minutes. Depending on anticipated concentration, 10 to 100uL of the extract is added to 5mL of volatile free water in the purge and trap or ~3ul of the extract is directly injected into the gas chromatograph.

Purge and Trap Conditions

Instrument:	Tekmar LSC-2000 or equivalent
Trap:	Carbosieve/Carbopak or Tenex
Purge flow:	20mL/min to 30mL/min
Purge time:	8 minutes
Dry purge time:	8 minutes
Desorb time:	3 minutes
Desorb temperature:	150 to 225 degrees C (trap dependent)
Bake time:	10 minutes
Bake temperature:	175 to 250 degrees C (trap dependent)

Gas Chromatography

Instrument:	Shimadzu GC-14 or equivalent
Column:	50 to 100 meter by 0.53mm, DB-624 megabore capillary.
Carrier flow:	Helium at 15mL/min.

Detector:	Electrolytic Conductivity detector (Hall).
Detector temperature:	225 degrees C
Injector temperatures:	175 degrees C
Column oven:	35 degrees C for 5 minutes, 35 to 175 degrees C at 5/minute

Standard Preparation: Primary 8010 standards at 100mg/L (ppm) in methanol are purchased from a certified supplier. Secondary Standards (1ng/uL): dilute primary standard as needed.

Water Matrix Spikes: For 1 ug/L (1 ppb) water concentration, add 5uL of 1ng/uL (ppm) secondary 601 standard to 5mL of water (1,000 times dilution).

Soil Matrix Spikes: For 0.1 mg/kg (0.1 ppm) soil concentration, add 10uL of 100 ng/uL primary standard to ten grams of soil.

4.3 Aromatic Hydrocarbons By EPA Methods 602 and 8020

Introduction: The purpose of this procedure is to describe the GC method for determination of volatile aromatic hydrocarbons in soils, solid wastes, and waters using a photoionization detector. Details of the method are found in EPA Document SW-846. Presented below is an overview of the method in terms of calibration, operating conditions, compound identification, and calculations. This method can be modified to include Methyl tert-Butyl Ether (MTBE) in accordance with the requirements of certain states.

Calibration: Initial calibration is accomplished by preparing standards at five concentrations spanning the linear range of the instrument. The standards are then analyzed and the calibration curve evaluated for linearity. Linearity is acceptable when the % relative standard deviation of the average response factor is less than 20%. If linearity is not achieved for some compounds, a calibration curve is used.

Water Sample Preparation: Samples are prepared either by purge & trap following EPA Method 5030 or by liquid-liquid extraction, generally following EPA Method 3510. For extraction, a 30 to 40mL aliquot of water is extracted with 1mL of an immiscible organic solvent (hexane, methylene chloride, Freon 113) by shaking vigorously for 5 minutes in a clean 40mL VOA vial. The mixture is allowed to settle and an aliquot (~3uL) of solvent is withdrawn and injected into the gas chromatograph.

Soil Sample Preparation: Soil samples are prepared either by purge & trap following EPA Method 5030 or by liquid-solid sonication extraction, generally following EPA Method 3550. 10 grams of soil are weighed to the nearest 0.1 gram and placed into a clean VOA vial with 10mL of an organic solvent (methanol, Freon 113) and dried as appropriate with NaSO4. The VOA vial is shaken for 2 minutes, and sonicated for 10 minutes. Depending on anticipated concentration, 10 to 100uL of the extract is added to 5mL of volatile free water in the purge and trap or an aliquot of the extract (~3 ul) is directly injected into the gas chromatograph.

Purge and Trap Conditions

Refer to Section 4.2.

Gas Chromatography

Instrument:	Shimadzu GC-14 or equivalent
Column:	20 to 50 meter by 0.53mm, DB-5 megabore capillary.
Carrier flow:	Helium at 15mL/min.
Detector:	Photoionization detector (PIDI).
Detector temperature:	225 degrees C
Injector temperatures:	175 degrees C
Column oven:	45 degrees C for 4 minutes, 45 to 175 degrees C at 10/minute

Standard Preparation: Primary 8020 standards at 100mg/L (ppm) in methanol are purchased from a certified supplier. Secondary Standards (1ng/uL): dilute primary standard as needed.

Water Matrix Spikes: For 1 ug/L (1 ppb) water concentration, add 5uL of 1ng/uL (ppm) secondary 602 standard to 5mL of water (1,000 times dilution).

Soil Matrix Spikes: For 0.1 mg/kg (0.1 ppm) soil concentration, add 10uL of 100 ng/uL primary standard to ten grams of soil.

4.4 Total Petroleum Hydrocarbons (TPH) by EPA Method 8015 Modified for Fuels

Introduction: The purpose of this procedure is to describe the GC method for determination of Total Petroleum Hydrocarbons (TPH) in soils, solid wastes, and waters using a flame ionization detector. Details of the method are found in EPA Document SW-846 and the California LUFT Manual. The method is applicable to determination of gasoline, diesel, and other volatile and semi-volatile fuels in water, soils, and wastes. This method is approved by many States and agencies as a quantitative method for the determination of total fuels content.

Calibration: Initial calibration is accomplished by using external standard techniques. Standards are prepared from three to five concentrations spanning the linear range of the instrument. Standards composed of the anticipated fuel product to be analyzed are used for the calibration. The standards are then analyzed and the response factor curve evaluated for linearity. Linearity is acceptable when the % relative standard deviation of the average response factor is less than 20%.

Sample Preparation and Extraction

Water Samples: Samples are prepared either by purge & trap following EPA Method 5030 or by liquid-liquid extraction, generally following EPA Method 3510. For extraction, a 30 to 40mL aliquot of water is extracted with 1mL of an immiscible organic solvent (hexane, methylene chloride, Freon 113) by shaking vigorously for 5 minutes in a clean 40mL VOA vial. The mixture is allowed to settle and 3uL of solvent are withdrawn and injected into the gas chromatograph.

Soil Samples: Soil samples are prepared either by purge & trap following EPA Method 5030 or by liquid-solid sonication extraction, generally following EPA Method 3550. 10 grams of soil are weighed to the nearest 0.1 gram and placed into a clean VOA vial with 10mL of an organic solvent (methanol, methylene chloride, Freon 113) and dried as appropriate with NaSO4. The VOA vial is shaken for 2 minutes, and sonicated for 10 minutes. Depending on anticipated concentration and the fuel being measured, 10 to 100uL of the extract is added to 5mL of volatile free water in the purge and trap or ~3ul of the extract is directly injected into the gas chromatograph.

Gas Chromatography

Instrument:	Gas Chromatograph with FID
Column:	30 meter by 0.53mm , DB-1, megabore capillary.
Carrier flow:	Helium at 15mL/min.
Detector temperature:	250 degrees C
Injector temperatures:	200 degrees C
Column oven:	45 degrees C for 4 minutes, 45 to 245 degrees C at 10/minute, Hold at 245 degrees C for 5 minutes.

Standard Preparation: Primary Calibration Standards are made from pure fuel products as follows:

Low calibration standard (20 ng/uL): add 0.25uL gasoline to 10mL solvent.
Mid calibration standard (200 ng/uL): add 2.5uL gasoline to 10ml solvent.
High calibration standard (2000 ng/uL): add 25uL gasoline to 10mL solvent.

Low calibration standard (50 ng/uL): add 0.55uL diesel to 10mL solvent.
Mid calibration standard (500 ng/uL): add 5.5uL diesel to 10ml solvent.
High calibration standard (5000 ng/uL): add 55uL diesel to 10mL solvent.

4.5 Total Oil & Grease (TRPH) by EPA Method 418.1

Introduction: The purpose of this procedure is to describe the method for determination of Total Recoverable Petroleum Hydrocarbons (TRPH) in soils, solid wastes, and waters using an infrared spectrometer. Details of the method are found in EPA Document SW-846. The method is applicable to determination of total oil & grease and petroleum hydrocarbons in water, soils, and wastes. This method is approved by EPA as a quantitative method for the determination of total fuels content.

Calibration: Calibration for the method is accomplished by using external standard techniques. Standards are prepared at three to five concentrations spanning the linear range of the instrument. Standards composed of the anticipated fuel product to be analyzed or the EPA three-component mix standard are used for the calibration. The standards are then analyzed and the response factor evaluated for linearity. . Linearity is acceptable when the % relative standard deviation of the average response factor is less than 20%. If linearity is not achieved, a calibration curve is used.

Sample Preparation and Extraction

Water Samples: Water samples are prepared by liquid-liquid extraction, generally following EPA Method 3510. A 33mL aliquot of water is extracted with 3mL of Freon 113 by shaking vigorously for 5 minutes in a clean 40mL VOA vial. The mixture is allowed to settle and 2ml of solvent are withdrawn for clean-up.

Soil Samples: Soil samples are prepared by liquid-solid extraction, generally following EPA Method 3550. 10 grams of soil are weighed to the nearest 0.1 gram and placed into a clean VOA vial with 10mL of Freon 113 and NaSO4. The VOA vial is shaken for 2 minutes, and sonicated for 10 minutes. After sonication, the slurry is allowed to settle and 2ml of solvent are withdrawn for clean-up.

Both water and soil extracts are passed through columns of Silica gel prior to analysis on the Infrared Spectrometer.

Instrument: Buck Scientific HC-404

Standard Preparation

Substock Calibration Standards (in trichlorotrifluoroethane):

Low calibration standard (50ng/uL): add .55uL diesel or oil to 10mL solvent.
Mid calibration standard (500ng/uL): add 5.5uL diesel or oil to 10ml solvent.
High calibration standard (5000ng/uL): add 55uL diesel or oil to 10mL solvent.

Soil Matrix Spikes: Add 0.55uL pure diesel or oil to 10 grams soil = 50mg/kg (ppm)

Water Matrix Spikes: For 5mg/L (5 ppm), add 2.2 uL 1000 mg/ml diesel or oil standard to 40 ml

5.0 HEALTH AND SAFETY PLAN

A Site Health and Safety Plan will be prepared for the Site characterization in accordance with 29 CFR Occupational Safety and Health Administration requirements.

TABLE1
SAMPLING AND ANALYSIS PLAN
Douglas Aircraft C-6 Facility, Torrance California
K/J 974002.00

Area	Location	Proposed Sampling	Sampling Method	Sample No.	Sample Depth	Media[c]	Analytical Methods[d]												
							8010/ 8020 (VOC)	418.1 (TRPH)	8015M (Gas, Diesel)	CAM Metals	$Cr^{(VI)}$	8270 (SVOC)	8260 (MTBE)	8080 (PCBs)	8080 (Pesti-cides)	pH	Cyanide	Freon	Physical Analysis
1	Building 40	Drill two soil borings in area of lubricant storage	DP	1-1-1	1	s	x	x	x	x		x							
				1-1-5	5	s	x	x	x	x		x							
				1-1-10	10	s	x	x	x	x		x							
				1-2-1	1	s	x	x	x	x		x							
				1-2-5	5	s	x	x	x	x		x							
				1-2-10	10	s	x	x	x	x		x							
1	Building 41	Drill one soil boring inside the building near the floor drain	DP	1-3-10	10	s	x	x	x	x		x							
				1-3-20	20	s	x	x	x	x		x							
				1-3-30	30	s	x	x	x	x		x							
				1-3-40	40	s	x	x	x	x		x							
				1-3-50	50	s	x	x	x	x		x							
1	Building 41	Drill three soil borings, one each on the north, east, and south sides of the building	DP	1-4-(10-50)	10-foot int's.	s	5x	5x	5x	5x	5x	5x							
				1-5-(10-50)	10-foot int's.	s	5x	5x	5x	5x	5x	5x							
				1-6-(10-50)	10-foot int's.	s	5x	5x	5x	5x	5x	5x							
1	Building 45	Drill three soil borings inside building and two soil borings outside on the north side	DP	1-7-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x	3x							
				1-8-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x	3x							
				1-9-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x	3x							
				1-10-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x	3x							
				1-11-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x	3x							
1	Building 66A (66-1)	Two soil borings drilled in or near stained area, sample at 1', 5', and 10' below the base of the asphalt, and 1', 5', and 10' below the base of the tank	DP	1-12-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x	3x					3x		
				1-13-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x	3x					3x		
1	Chrome Recovery System Area	Drill four soil borings inside the chrome recovery system containment areas and one soil boring north of the process area	DP	1-14-(1-10)	1, 5, 10	s				3x	3x					3x			
				1-15-(1-10)	1, 5, 10	s				3x	3x					3x			
				1-16-(1-10)	1, 5, 10	s				3x	3x					3x			
				1-17-(1-10)	1, 5, 10	s				3x	3x					3x			
				1-18-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x					3x			
1	Chemical Etching Area	Drill four soil borings in chemical etching area	DP	1-19-(1-10)	1, 5, 10	s	3x			3x	3x					3x			
				1-20-(1-10)	1, 5, 10	s	3x			3x	3x					3x			
				1-21-(1-10)	1, 5, 10	s	3x			3x	3x					3x			
				1-22-(1-10)	1, 5, 10	s	3x			3x	3x					3x			
1	Area southest of building 41	Drill four soil borings between building 41 and 45	HSA	1-23-(10-50)	10-foot int's.	s	5x	5x	5x	5x							5x		
				1-24-(10-50)	10-foot int's.	s	5x	5x	5x	5x							5x		
				1-25-(10-50)	10-foot int's.	s	5x	5x	5x	5x							5x		
				1-26-(10-50)	10-foot int's.	s	5x	5x	5x	5x							5x		
1	Open area	Drill five soil borings throughout the open space	DP	1-27-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				1-28-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				1-29-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				1-30-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				1-31-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							

a. DP= Direct Push
b. Density in borings per acre
c. s= soil
ssl= solid sludge
lsl= liquid sludge

d. VOC= volatile organic compounds
TRPH= total recoverable petroleum hydrocarbons
SVOCs= semivolatile organic compounds
MTBE= methyl tertiary butyl ether
PCB= polychlorinated biphenyl
Physical Analysis includes moisture content, porosity, and organic content

BOE-C6-0077182

TABLE1
SAMPLING AND ANALYSIS PLAN
Douglas Aircraft C-6 Facility, Torrance California
K/J 974002.00

Area	Location	Proposed Sampling	Sampling Method	Sample No.	Sample Depth	Media[c]	Analytical Methods[d]												
							8010/ 8020 (VOC)	418.1 (TRPH)	8015M (Gas, Diesel)	CAM Metals	$Cr^{(VI)}$	8270 (SVOC)	8260 (MTBE)	8080 (PCBs)	8080 (Pesti-cides)	pH	Cyanide	Freon	Physical Analysis
1A	Border with Industrial Light Metals (ILM)	Drill eight soil borings along the border with ILM to the west and 11 soil borings throughout the remainder of the parking area	HSA	1-32-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				1-33-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				1-34-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				1-35-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				1-36-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				1-37-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				1-38-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				1-39-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
			DP	1-40-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-41-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-42-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-43-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-44-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-45-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-46-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-47-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-48-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-49-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				1-50-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
2	Buildings 54-56	Drill two soil borings, one in stained area, and one near the transformer	DP	2-1-(1-10)	1, 5, 10	s	3x	3x	3x										
				2-2-(1-10)	1, 5, 10	s								3x					
2	Tool storage yard/ railroad spurs	Drill four soil borings along border with Capitol Metals at 300' spacings	DP	2-3-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-4-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-5-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-6-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
2	Tool storage yard/ railroad spurs	Drill 15 soil borings troughout the tool storage area and open space	DP	2-7-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-8-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-9-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-10-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-11-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-12-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-13-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-14-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-15-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-16-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-17-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-18-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-19-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-20-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-21-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							

a. DP= Direct Push
b. Density in borings per acre
c. s= soil
ssl= solid sludge
lsl= liquid sludge

d. VOC= volatile organic compounds
TRPH= total recoverable petroleum hydrocarbons
SVOCs= semivolatile organic compounds
MTBE= methyl tertiary butyl ether
PCB= polychlorinated biphenyl
Physical Analysis includes moisture content, porosity, and organic content

BOE-C6-0077183

TABLE1
SAMPLING AND ANALYSIS PLAN
Douglas Aircraft C-6 Facility, Torrance California
K/J 974002.00

Area	Location	Proposed Sampling	Sampling Method	Sample No.	Sample Depth	Media[c]	Analytical Methods[d] 8010/8020 (VOC)	418.1 (TRPH)	8015M (Gas, Diesel)	CAM Metals	Cr(VI)	8270 (SVOC)	8260 (MTBE)	8080 (PCBs)	8080 (Pesti-cides)	pH	Cyanide	Freon	Physical Analysis
2	Scrap metal storage area	Drill nine soil borings throughout the area. Collect samples from 1', 5', and 10' in the seven westernmost borings, and 5'-25' in the two easternmost borings that border the substation	DP	2-22-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-23-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-24-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-25-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-26-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-27-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-28-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				2-29-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x		5x					
				2-30-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x		5x					
2	Eastern open area	Drill two soil borings along border with substation	DP	2-31-(5-25)	5-foot int's.	s	5x	5x	5x					5x					
				2-32-(5-25)	5-foot int's.	s	5x	5x	5x					5x					
2	Eastern open area	Drill three soil borings along border with Montrose Chemical	DP	2-33-(5-25)	5-foot int's.	s	5x	5x	5x						5x				
				2-34-(5-25)	5-foot int's.	s	5x	5x	5x						5x				
3	Buildings 59 and 59A	Drill two soil borings, one near the hydraulic scale (sample at 1', 5', and 10' below bottom of scale), one in the stained area inside building 59A	DP	3-1-(1-10)	1, 5, 10	s	3x	3x	3x										
				3-2-(1-10)	1, 5, 10	s	3x	3x	3x										
3	Border with Montrose Chemical	Drill six soil borings at 200' spacings along border	DP	3-3-(5-25)	5-foot int's.	s	5x	5x	5x						5x			5x	
				3-4-(5-25)	5-foot int's.	s	5x	5x	5x						5x			5x	
				3-5-(5-25)	5-foot int's.	s	5x	5x	5x						5x			5x	
				3-6-(5-25)	5-foot int's.	s	5x	5x	5x						5x			5x	
				3-7-(5-25)	5-foot int's.	s	5x	5x	5x						5x			5x	
				3-8-(5-25)	5-foot int's.	s	5x	5x	5x						5x			5x	
3	Salvage yard/ storage yard	Drill nine soil borings throughout the area	DP	3-9-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-10-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-11-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-12-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-13-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-14-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-15-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-16-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				3-17-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
4	Driveway between Building 66 and Railroad Tracks	Drill six soil borings throughout the area	DP	4-1-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				4-2-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				4-3-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				4-4-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				4-5-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
				4-6-(1-10)	1, 5, 10	s	3x	3x	3x	3x		3x							
5	Building 4	Drill one soil boring inside building 4	DP	5-1-(1-10)	1, 5, 10	s	3x							3x		3x			
5	Building 15	Drill on soil boring in photo lab	DP	5-2-(1-10)	1, 5, 10	s	3x			3x									
5	Border with ILM on west	Drill three soil borings along the border with ILM	HSA	5-3-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				5-4-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				5-5-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
5	Western open space	Drill four soil borings throughout open space	DP	5-6-(1-10)	1, 5, 10	s	3x	3x	3x										
				5-7-(1-10)	1, 5, 10	s	3x	3x	3x										
				5-8-(1-10)	1, 5, 10	s	3x	3x	3x										
				5-9-(1-10)	1, 5, 10	s	3x	3x	3x										
5	Building 20	Drill two soil borings, one below concrete in battery charging area in north end of	DP	5-10-(1-10)	1, 5, 10	s	3x	3x	3x							3x			
				5-11-(1-10)	1, 5, 10	s	3x	3x	3x				3x						

a. DP= Direct Push
b. Density in borings per acre
c. s= soil
ssl= solid sludge
lsl= liquid sludge

d. VOC= volatile organic compounds
TRPH= total recoverable petroleum hydrocarbons
SVOCs= semivolatile organic compounds
MTBE= methyl tertiary butyl ether
PCB= polychlorinated biphenyl
Physical Analysis includes moisture content, porosity, and organic content

BOE-C6-0077184

TABLE1
SAMPLING AND ANALYSIS PLAN
Douglas Aircraft C-6 Facility, Torrance California
K/J 974002.00

Area	Location	Proposed Sampling	Sampling Method	Sample No.	Sample Depth	Media[c]	Analytical Methods[d]: 8010/ 8020 (VOC)	418.1 (TRPH)	8015M (Gas, Diesel)	CAM Metals	$Cr^{(VI)}$	8270 (SVOC)	8260 (MTBE)	8080 (PCBs)	8080 (Pesti-cides)	pH	Cyanide	Freon	Physical Analysis
		building, and one below motor oil tank																	
5	Building 20	Drill one soil boring below the clarifier draining steam cleaning booth	DP	5-12-(1-10)	1, 5, 10	s	3x	3x	3x										
5	Building 20	Drill two soil borings below hydraulic lifts	DP	5-13-(1-10)	1, 5, 10	s	3x	3x	3x										
				5-14-(1-10)	1, 5, 10	s	3x	3x	3x										
5	Building 20	Drill two soil borings below ondensation collection pit in southwest corner	DP	5-15-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				5-16-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
5	Building 20	Drill three soil borings near the two underground storage tanks and pumps on east side of building	DP	5-17-(1-10)	1, 5, 10	s	3x	3x	3x				3x						
				5-18-(1-10)	1, 5, 10	s	3x	3x	3x				3x						
				5-19-(1-10)	1, 5, 10	s	3x	3x	3x				3x						
5	Building 32	Drill one soil boring in salvage yard at rear of building	DP	5-20-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
5	Building 1	Drill two borings in painting area in east wing of basement	DP	5-21-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x					3x			
				5-22-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x					3x			
5	Building 1	Drill three soil borings near dip tanks	DP	5-23-(1-10)	1, 5, 10	s	3x			3x	3x					3x			
				5-24-(1-10)	1, 5, 10	s	3x			3x	3x					3x			
				5-25-(1-10)	1, 5, 10	s	3x			3x	3x					3x			
5	Building 1	Drill 20 soil borings throughout building	DP	5-26-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-27-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-28-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-29-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-30-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-31-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-32-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-33-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-34-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-35-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-36-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-37-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-38-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-39-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-40-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-41-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-42-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-43-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-44-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-45-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
5	Border with building 2	Drill five soil borings throughout border area	DP	5-46-(1-10)	1, 5, 10	s	3x	3x	3x	3x	3x								
				5-47-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				5-48-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				5-49-(1-10)	1, 5, 10	s	3x	3x	3x	3x									
				5-50-(1-10)	1, 5, 10	s	3x	3x	3x	3x									

a. DP= Direct Push
b. Density in borings per acre
c. s= soil
ssl= solid sludge
lsl= liquid sludge

d. VOC= volatile organic compounds
TRPH= total recoverable petroleum hydrocarbons
SVOCs= semivolatile organic compounds
MTBE= methyl tertiary butyl ether
PCB= polychlorinated biphenyl
Physical Analysis includes moisture content, porosity, and organic content

BOE-C6-0077185

TABLE1
SAMPLING AND ANALYSIS PLAN
Douglas Aircraft C-6 Facility, Torrance California
K/J 974002.00

Area	Location	Proposed Sampling	Sampling Method	Sample No.	Sample Depth	Media[c]	Analytical Methods[d]												
							8010/ 8020 (VOC)	418.1 (TRPH)	8015M (Gas, Diesel)	CAM Metals	$Cr^{(VI)}$	8270 (SVOC)	8260 (MTBE)	8080 (PCBs)	8080 (Pesti-cides)	pH	Cyanide	Freon	Physical Analysis
6	Parking lot	Drill seven soil borings at 200' spacing along border ILM and Capitol Metals on west	HSA	6-1-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				6-2-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				6-3-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				6-4-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				6-5-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				6-6-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
				6-7-(10-50)	10-foot int's.	s	5x	5x	5x	5x				5x					
6	Parking lot	Drill nine soil borings throughout open parking area	DP	6-8-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-9-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-11-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-12-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-13-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-14-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-15-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
				6-16-(5-25)	5-foot int's.	s	5x	5x	5x	5x				5x					
NE	Diesel Fuel Line in Supplemental Area NE	Drill four soil borings along pipeline. Drill to 50' in boring closest to building 41	DP	NE-1-(5-25)	5-foot int's.	s	5x	5x	5x										
				NE-2-(5-25)	5-foot int's.	s	5x	5x	5x										
				NE-3-(5-25)	5-foot int's.	s	5x	5x	5x										
				NE-4-(10-50)	10-foot int's.	s	5x	5x	5x										
NE	Northeast unpaved area in Supplemental Area NE	Drill 10 soil borings throughout area	DP	NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
				NE-10-(5-25)	5-foot int's.	s	5x	5x	5x	5x		5x							
			HSA	NE-12-(10-50)	10-foot int's.	s	5x	5x	5x	5x		5x							
NW	Area of Buildings 67, 57, 61, and 34 in Supplemental Area NW	Drill nine soil borings throughout area	DP	NW-1-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-2-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-3-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-4-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-5-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-6-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-7-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-8-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			
				NW-9-(1-10)	1, 5, 10	s	3x	3x	3x	3x						3x			

a. DP= Direct Push
b. Density in borings per acre
c. s= soil
ssl= solid sludge
lsl= liquid sludge

d. VOC= volatile organic compounds
TRPH= total recoverable petroleum hydrocarbons
SVOCs= semivolatile organic compounds
MTBE= methyl tertiary butyl ether
PCB= polychlorinated biphenyl
Physical Analysis includes moisture content, porosity, and organic content

BOE-C6-0077186

TABLE 2

QUALITY ASSURANCE CRITERIA

COMPONENT	PRECISION RPD (Max.)	ACCURACY %Recovery	MDL	ACCURACY %Recovery	MDL
HALOGENATED HYDROCARBONS					
EPA Method 8010		Water		Soil	
			ug/L		mg/kg
Bromoform	20	13-159	0.3	60-125	0.005
Bromomethane	20	D-144	0.3	60-125	0.005
Carbon Tetrachloride	20	43-143	0.3	65-120	0.005
Chlorobenzene	20	38-150	0.3	65-120	0.005
Chloroethane	20	46-137	0.3	65-120	0.005
Chloroform	20	49-133	0.3	65-120	0.005
Chloromethane	20	D-193	0.3	65-120	0.005
Dibromochloromethane	20	24-191	0.3	65-120	0.005
1,3-Dichlorobenzene	20	7-187	0.3	65-120	0.005
2-and 1,4-Dichlorobenzene	20	42-143	0.3	65-120	0.005
1,1-Dichloroethane	20	47-132	0.3	65-120	0.005
1,2-Dichloroethane	20	51-147	0.3	65-120	0.005
1,1-Dichloroethene	20	28-167	0.3	65-120	0.005
trans-1,2-Dichloroethene	20	38-155	0.3	60-125	0.005
1,2-Dichloropropane	20	44-156	0.3	60-125	0.005
cis-1,3-Dichloropropene	20	22-178	0.3	60-125	0.005
trans-1,3-Dichloropropene	20	22-178	0.3	60-125	0.005
Ethylene Dibromide	20	50-150	0.3	60-125	0.005
Methylene Chloride	20	25-162	0.3	60-125	0.005
1,1,2,2-Tetrachloroethane	20	8-184	0.3	60-125	0.005
Tetrachloroethane	20	26-162	0.3	60-125	0.005
1,1,1-Trichloroethane	20	41-138	0.3	60-125	0.005
1,1,2-Trichloroethane	20	39-136	0.3	60-125	0.005
Trichloroethane	20	35-146	0.3	60-125	0.005
Trichlorofluoromethane	20	21-156	0.3	60-125	0.005
Vinyl Chloride	20	28-163	0.3	50-125	0.005
AROMATIC HYDROCARBONS					
EPA Method 8020		Water		Soil	
			ug/L		mg/kg
Benzene	20	63-108	0.30	77-109	0.005
Toluene	20	62-90	0.30	75-112	0.005
Chlorobenzene	20	75-110	0.30	75-110	0.005
Ethylbenzene	20	65-106	0.30	74-110	0.005
1,3-Dichlorobenzene	20	75-110	0.30	75-110	0.005

1,2 and 1,4-Dichlorobenzene	20	75-110	0.30	75-110	0.005
m&p-Xylene	20	64-103	0.30	81-109	0.005
o-Xylene	20	64-103	0.30	81-109	0.005

TOTAL PETROLEUM HYDROCARBONS
EPA Method 8015 Modified

		Water		Soil	
			<u>ug/L</u>		<u>ug/kg</u>
Gasoline	20	63-117	500	82-122	10,000
Diesel	20	61-111	500	72-112	10,000

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
EPA Method 418.1

		Water		Soil	
			<u>mg/L</u>		<u>mg/kg</u>
	20	75-110	0.5	75-110	5.0

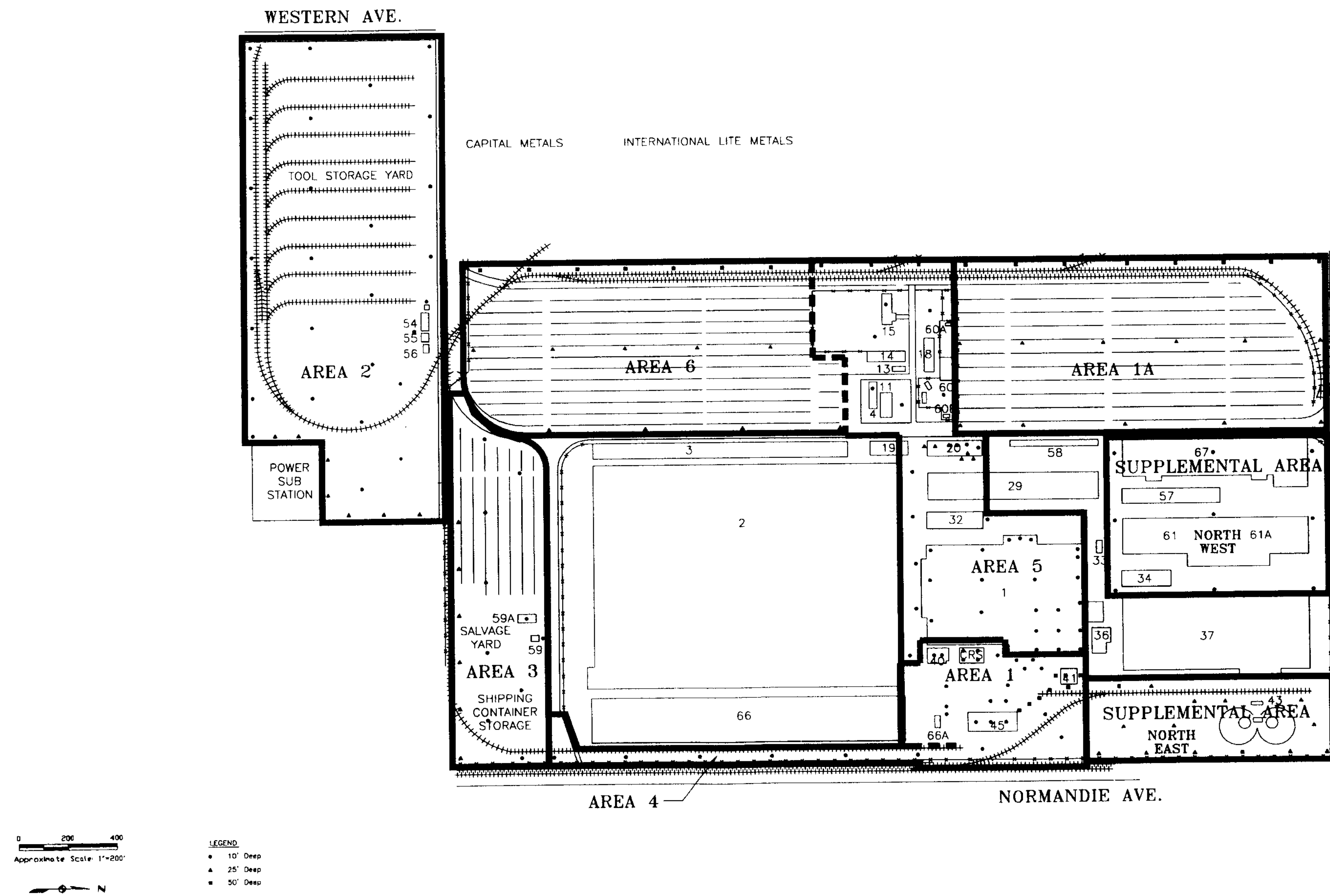

FIGURE 1
February 6, 1997

BOE-C6-0077189

AREAS 1 & 1A

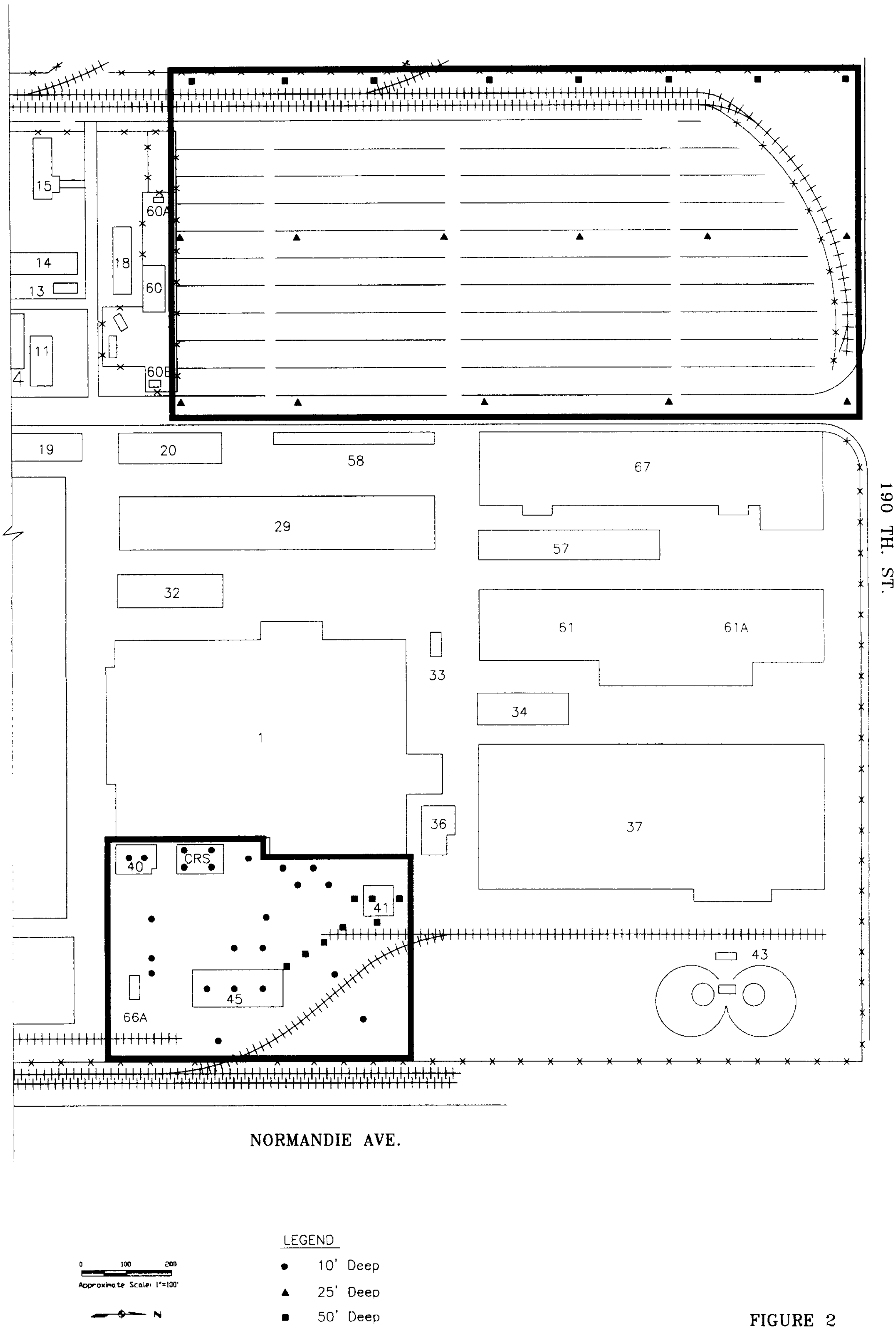

FIGURE 2
February 6, 1997

AREA 2

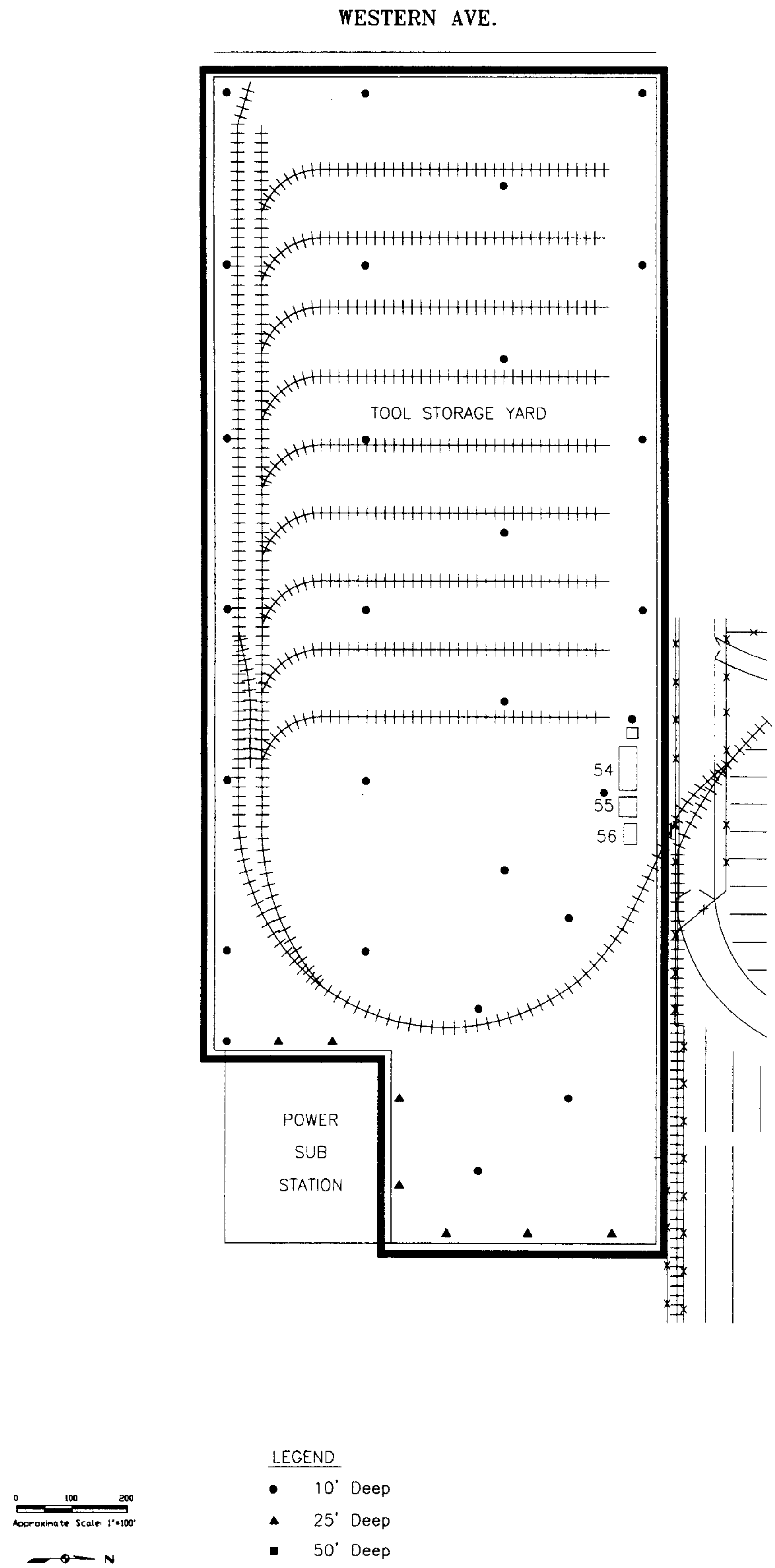

FIGURE 3
February 6, 1997

BOE-C6-0077191

AREA 3

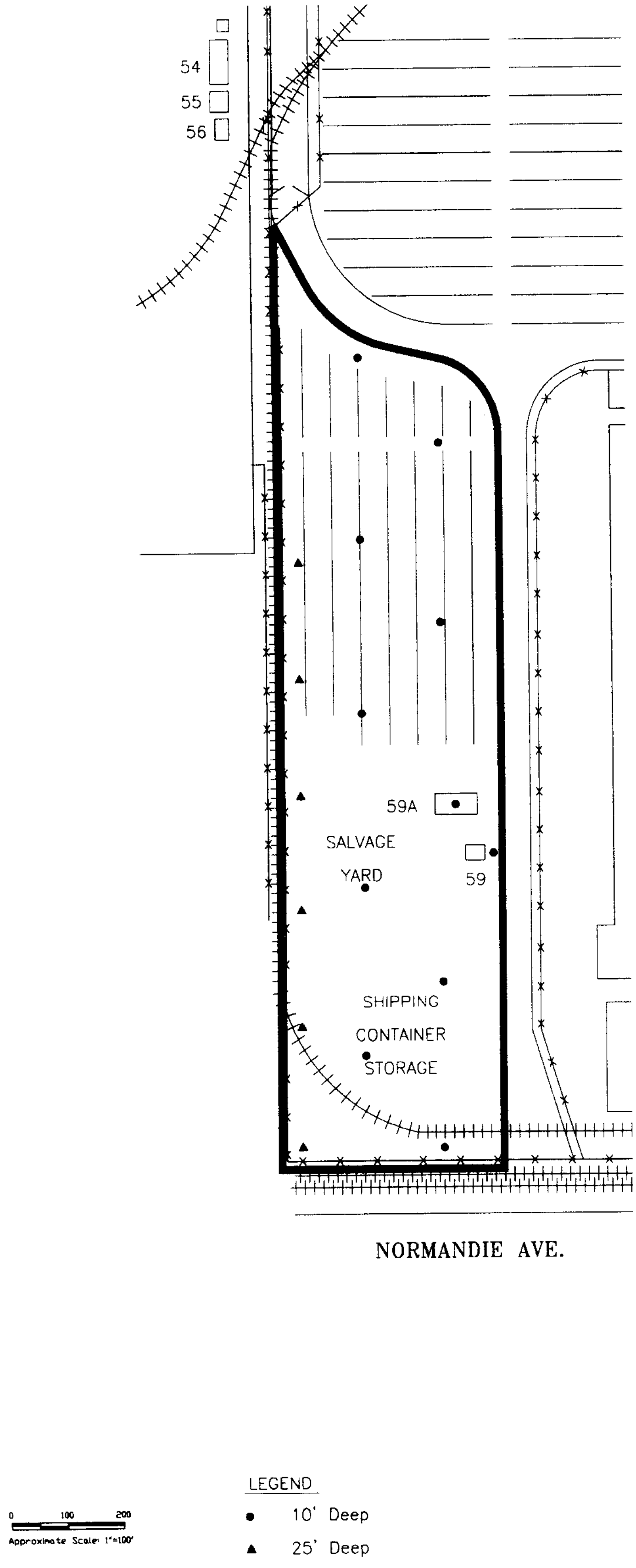

FIGURE 4
February 6, 1997

BOE-C6-0077192

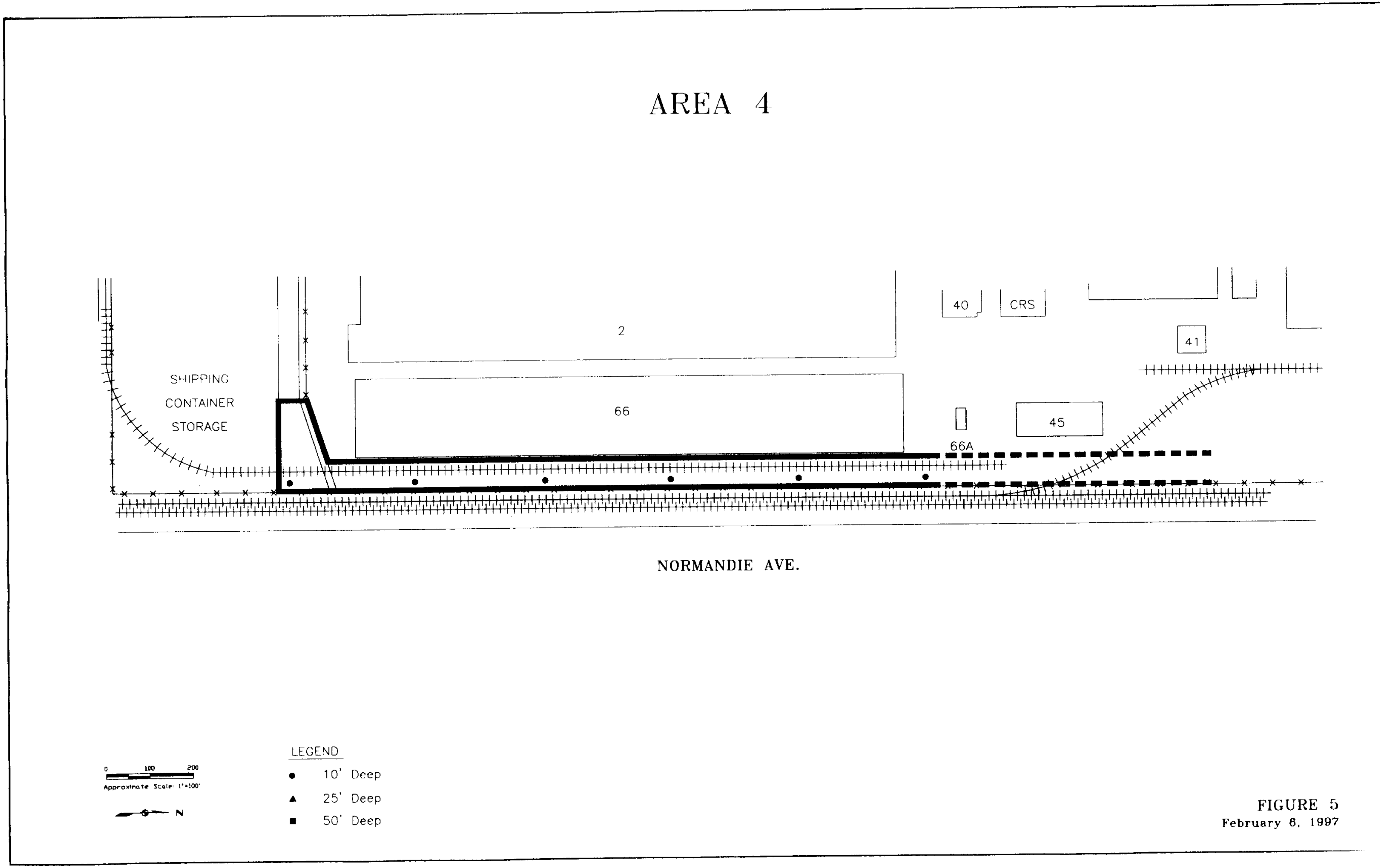

FIGURE 5
February 6, 1997

BOE-C6-0077193

AREA 5

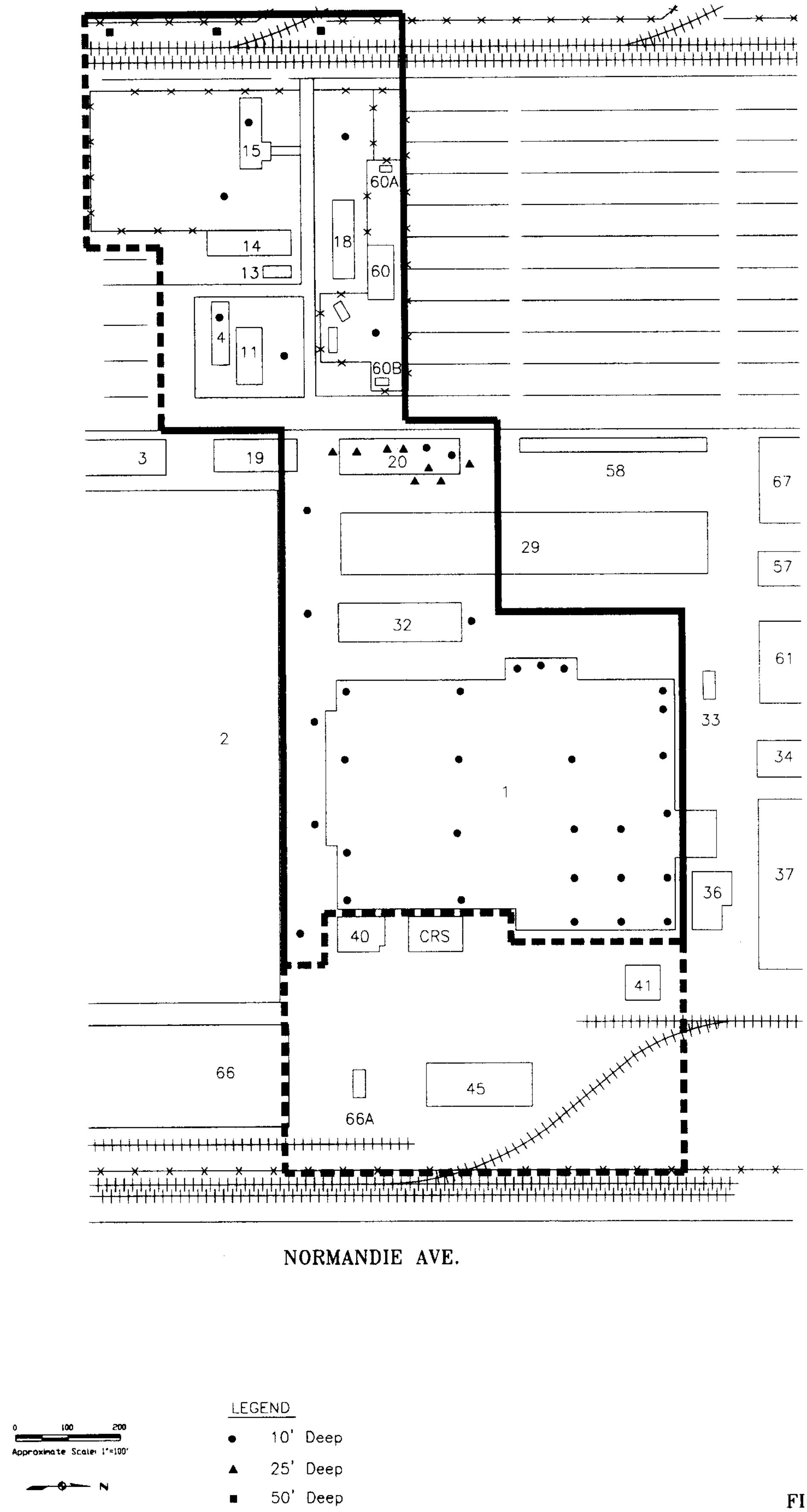

FIGURE 6
February 6, 1997

AREA 6

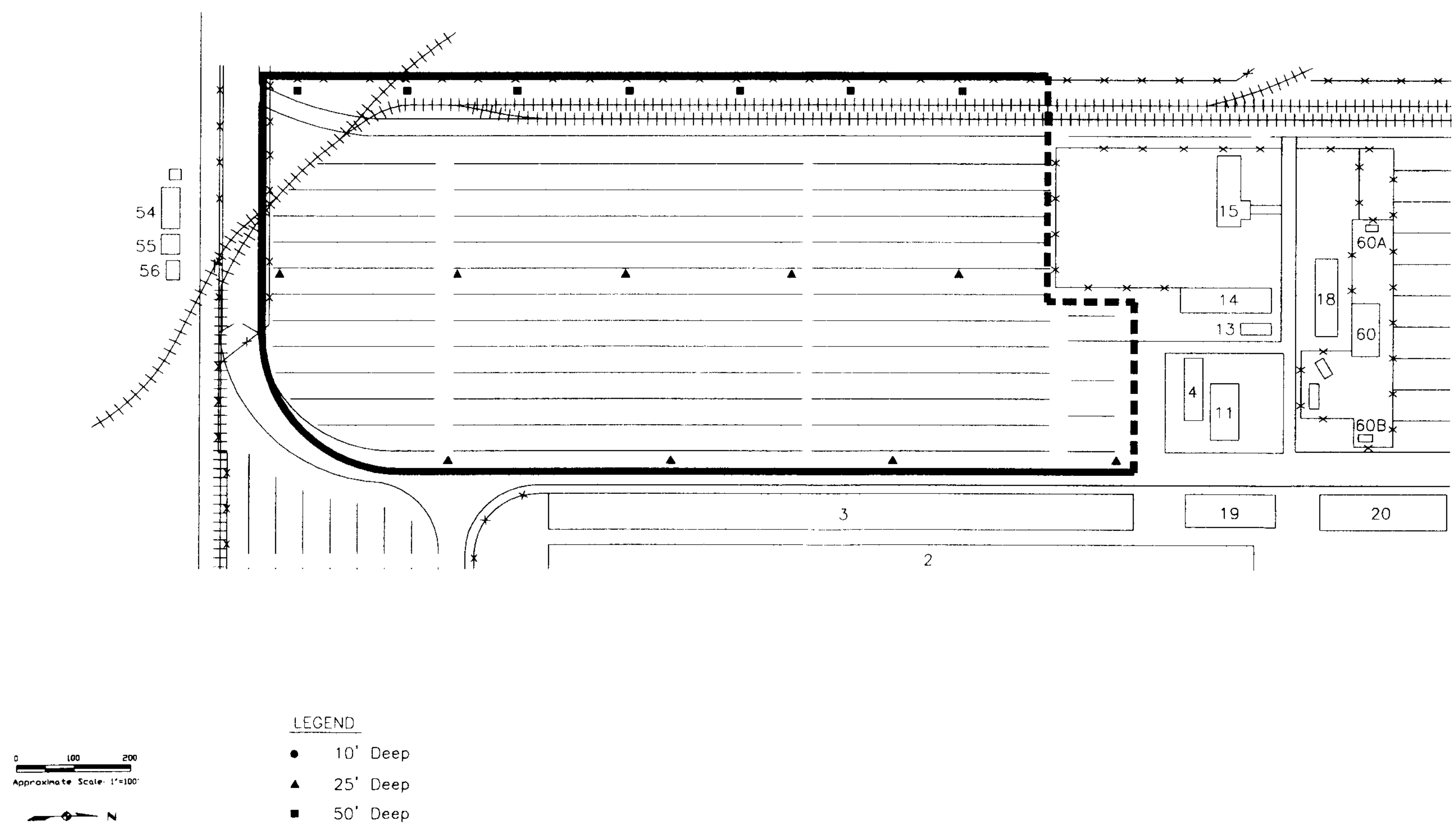

FIGURE 7
February 6, 1997

BOE-C6-0077195